
**Resistance welding — Vickers
hardness testing (low-force and
microhardness) of resistance spot,
projection, and seam welds**

Soudage par résistance — Essais de dureté Vickers (force réduite et microdureté) sur soudures par résistance par points, par bossages et à la molette

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee IIW, *International Institute of Welding*, Commission XIII, *Fatigue of welded components and structures*.

This third edition cancels and replaces the second edition (ISO 14271:2011), which has been technically revised with the following changes:

- correction of [Figure 4](#) a) and b);
- editorial improvements.

It also incorporates the Technical Corrigendum ISO 14271-201:2011/Cor 1:2012.

Requests for official interpretations of any aspect of this document should be directed to the ISO Central Secretariat, who will forward them to the IIW Secretariat for an official response.

Resistance welding — Vickers hardness testing (low-force and microhardness) of resistance spot, projection, and seam welds

1 Scope

This document specifies the procedures for the hardness testing of etched cross-sections of resistance spot, projection, and seam welds.

The aim of the hardness tests is to determine the Vickers hardness, in the low-force or microhardness range, of the weld nugget, the heat affected zone, and parent material in ferrous or non-ferrous metals for welds made in sheets of thickness 0,5 mm to 6 mm.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

ISO 6507-2, *Metallic materials — Vickers hardness test — Part 2: Verification and calibration of testing machines*

ISO 6507-3, *Metallic materials — Vickers hardness test — Part 3: Calibration of reference blocks*

ISO 6507-4, *Metallic materials — Vickers hardness test — Part 4: Tables of hardness values*

ISO 17677-1, *Resistance welding — Vocabulary — Part 1: Spot, projection and seam welding*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17677-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

low-force hardness test

Vickers hardness test using an applied force greater than or equal to 1,961 N, but less than or equal to 9,807 N

3.2

microhardness test

Vickers hardness test using an applied force less than 1,961 N

Note 1 to entry: Vickers hardness tests in the low-force range and Vickers microhardness tests give different results that are not easily correlated.